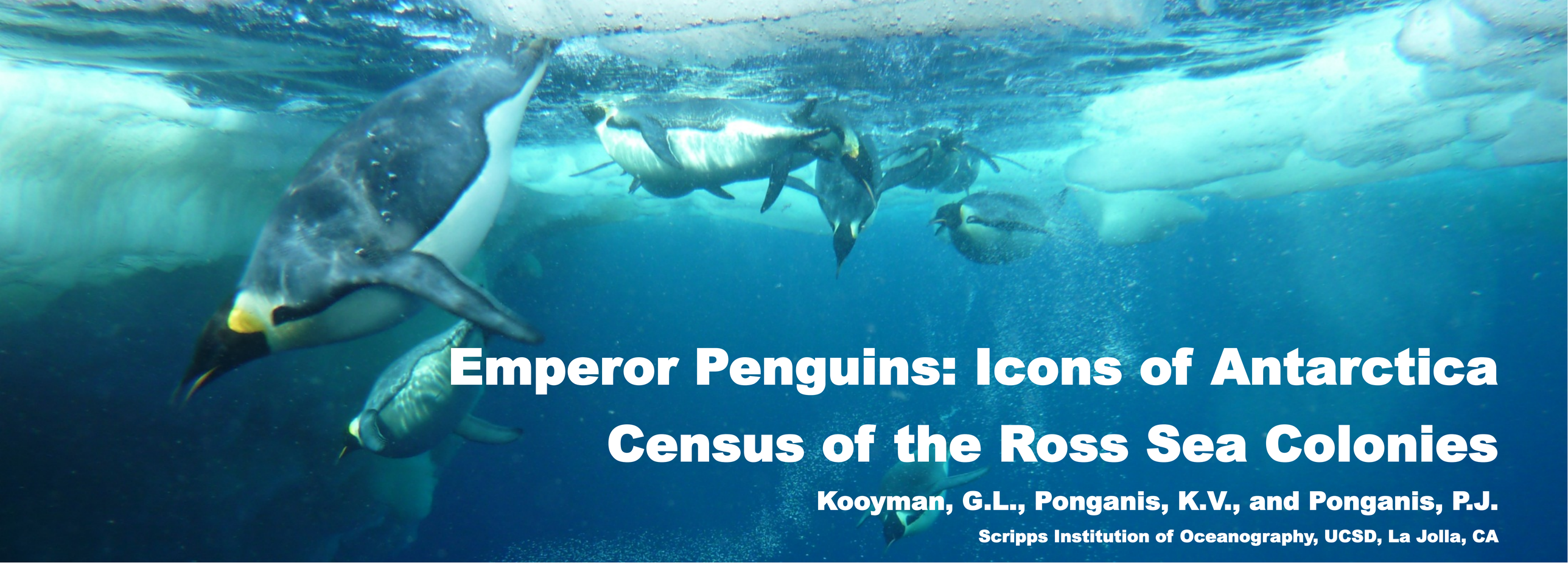

Emperor Penguins: Icons of Antarctica
Census of the Ross Sea Colonies

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Emperor penguins are the iconic species of Antarctica. In recent years, there have been concerns about the long-term survivability of this bird. French scientists, monitoring two emperor colonies at Pt. Géologie and Haswell Island, have raised the alarm about significant population drops in emperor penguin numbers (Barbraud et al. 2011). We have been monitoring some of the seven colonies in the Ross Sea (see *Figure 1*) since 1983 and have more recently extended our population counts to all of the Ross Sea colonies (see *Table 1*). Twenty-five percent of the world's emperor penguin population is in the Ross Sea, so information about this region is germane to the discussion of this species' survival.

Between the 1994 and the 2011 censuses, there was approximately a 10% difference in the total Ross Sea chick count, which probably is within normal population fluctuations. Notably, Coulman Island saw a steep decline of almost 50% and the Beaufort Island colony failed entirely in 2011, both possibly due to poor sea ice conditions in 2011, although other factors may be significant. Cape Washington saw a small decline, as well. In contrast, both Cape Roget and Franklin Island had increases and Cape Colbeck's chick count jumped by two-thirds.

Conclusion: So far, the emperor penguin population *of the Ross Sea* appears to be stable, although there are *significant* local fluctuations at individual colonies. However, we cannot yet make any long-term conclusions about the fate of the emperor penguin globally. Assessment of trends in the Ross Sea emperor penguin population cannot be done by monitoring just a single colony. Determination of long-term trends in population will require counts over a large area, like the Ross Sea. Recent use of the USAP Basler aircraft has allowed us to reach all seven colonies of this iconic and keystone species.

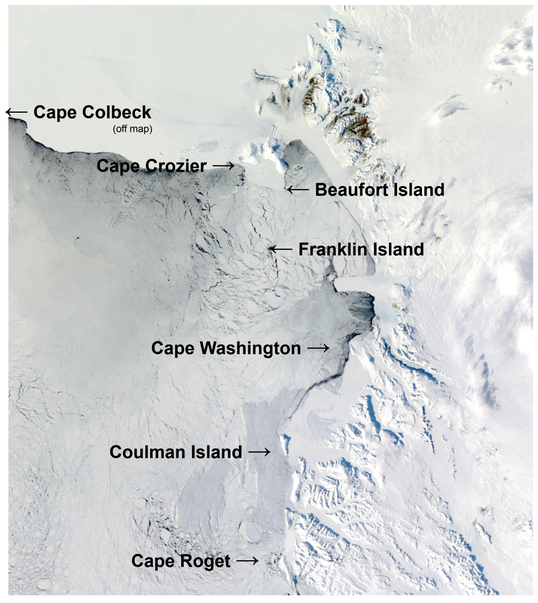
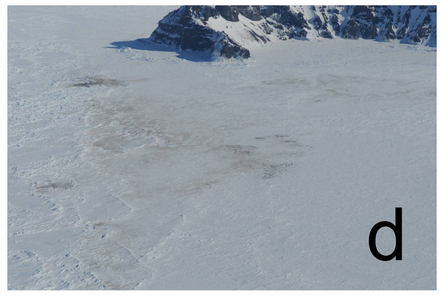


***Figure 1*: Location of the seven emperor penguin colonies of the Ross Sea.**



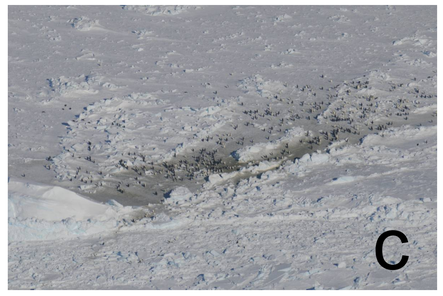


***Figure 2 (a-g)*: Aerial shots of the seven emperor penguin Ross Sea colonies.**

Colony	1994[2]	2011
a. Cape Colbeck	6350	10493
b. Cape Crozier	645	600
c. Beaufort Island	1356	0
d. Franklin Island	1548	3804
e. Cape Washington	23780	20422
f. Coulman Island	20204	10322
g. Cape Roget	6358	7144
Totals	60241	52785

[2] *Barber-Meyer et al. 2008*

***Table 1*: Emperor penguin chicks counts in Ross Sea colonies.**

BARBER-MEYER, S. M., KOOYMAN, G. L. & PONGANIS, P. J. 2008. Trends in western Ross Sea emperor penguin chick abundances and their relationship to climate. *Antarctic Science,* 20, 3-11.

BARBRAUD, C., GAVRILO, M., MIZIN, Y. & WEMMERSKIRCH, H. 2011. Comparison of emperor penguin declines between Pointe Ge'ologie and Haswell Island over the past 50 years. *Antarctic Science,* 23, 461-468.